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MEDICAL RECORD

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—*Seneca*

DECEMBER 1948

Vol. 161.

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Dr. Liber's Name Omitted by Mistake

The staff of MEDICAL RECORD sincerely regrets the omission of an author's name in the October, 1948 issue of the magazine. The paper "Preventive Mental Medicine" was written by *B. Liber,* M. D., Dr. P. H., F. A. P. A., 65 West 95th Street, New York 25, N. Y.

Dr. Liber has been a long and valued contributor to this publication, and this mistake on the part of the editorial staff is most regrettable.

Medical Officer Examination

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*Cruskin, B.: Am. J. Surg. 49:49 July 1940

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SEX M.
CASE HISTORY NO. 481
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PATIENT'S COMPLAINT:
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DECEMBER, 1948

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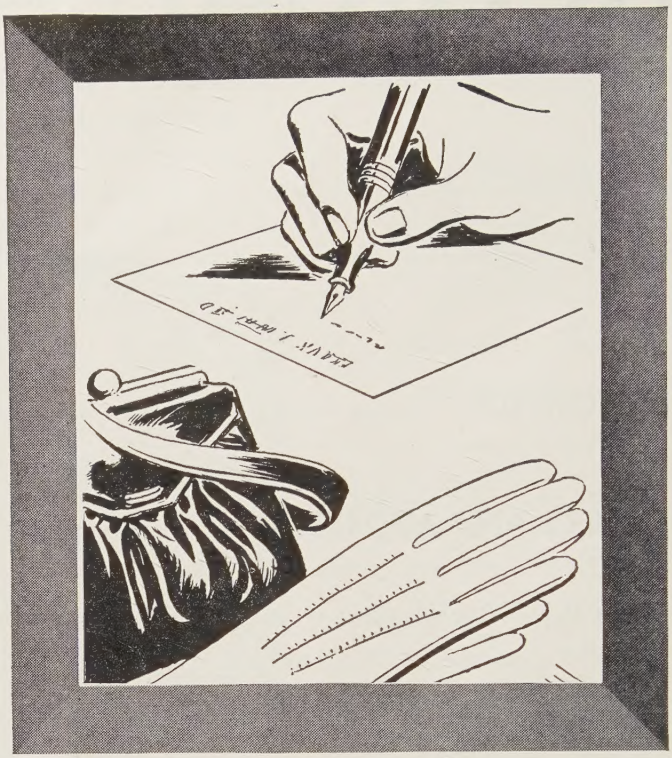

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United States Dispensatory, ed. 24, Philadelphia, J. B. Lippincott Company, 1947, p. 1194.

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1947 Year Book of General Therapeutics, Chicago, The Year Book Publishers, Inc., 1947, p. 258.

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Meningitis Losing Its Sting, Army Reports

Spinal meningitis, terror of World War I training camps, has today lost much of its menace. Early diagnosis and the prompt use of the drugs can usually stop the spread of the bacteria before they have a chance to become localized in the linings of spinal cord and brain.

The war experience, says Dr. Worth B. Daniels, shows that sulfadiazine is the best available drug. It is not as effective as penicillin against the bacteria in the blood stream but the latter drug proved to have one great disadvantage. While penicillin circulates through the blood stream freely, it does not get into the cerebro-spinal fluid in predictable quantities and hence cannot be relied upon to prevent invasion of brain and spinal cord tissues. Sulfadiazine enters the spinal fluid rapidly in high concentrations.

Radiologists Top All Specialists In Average Earnings, Survey Shows

Physicians specializing in radiology and roentgenology earn a higher average net income than physicians practicing any other speciality, the magazine *Medical Economics* stated in its October issue.

This was true also in 1943, in 1939, and probably before that, the article concludes.

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Low Temperature Research Project Conducted

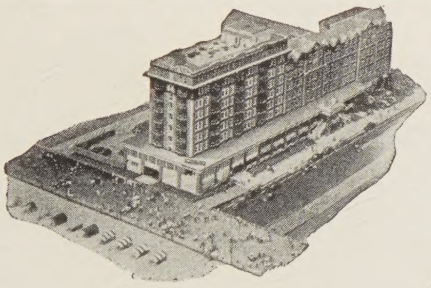
A low temperature research project conducted under a grant from the American Cancer Society was described by Dr. John R. Loofburow, Professor of Biophysics at Massachusetts Institute of Technology.

By reducing chemical compounds to a temperature near absolute zero, details of complex molecules hitherto unobservable can be studied by spectroscopic methods. The research throws new light on cell division and growth and also on substances affecting living organisms, and it therefore leads to a better understanding of the processes that take place in living systems, both in normal functioning and disease.

Hill To Open New Myerstown Plant

James Hill, Jr., president of Sterling Drug Inc., officially opened the new Myerstown plant of its subsidiary companies, Winthrop-Stearns Inc., and the George A. Breon Company.

The plant manufactures liquids, powders and ointments for the two companies. Other pharmaceuticals are produced at Rensselaer, N. Y., where the main warehouse and distribution center is located. At the present time the plant is responsible for the production of a total of 66 different medicinal preparations.



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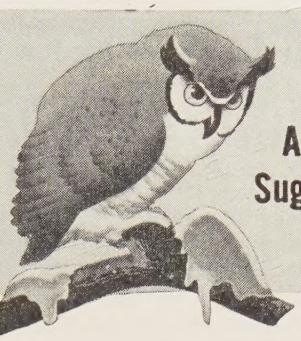

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Medicolegal Notes

Who May Recover Under a Hospitalization Policy

A hospitalization policy contained a provision requiring that the insured become a registered bed patient of a hospital in order to recover benefits under the policy.

The plaintiff in an action on the policy pleaded special facts and circumstances to entitle him to recover benefits under such a policy. Both parties moved for summary judgment in their favor. From the proof on these motions it appeared definitely that the plaintiff was not a registered bed patient of a hospital within the policy pleaded. "For the plaintiff to recover," the court said, "he must show that he was admitted to a hospital as a registered bed patient. Since plaintiff cannot, under the special facts and circumstances pleaded, sustain the burden of proof on this main issue, the complaint must be dismissed and judgment under the rule accordingly for the defendant." Kronstat v. Associated Hospital Service of New York, Manhattan Municipal Court, 78 N. Y. S. 2d 876.

Extent of Recovery for Maintenance and Cure

A chef on a steamship owned by the Government and operated by Moore-McCormick Lines contracted a disabling physical condition consisting of high blood pressure and hypertensive cardiac vascular disease which manifested itself during his employment but was not caused by it. He was hospitalized twice and received $341 for maintenance and care, computed on a basis of 118 days, signing a release from all claims on account of this service.

The Federal District Court of Southern New York, Muruaga v. United States, 77 F. Supp. 849, dismissed a libel in admiralty seeking a derru for maintenance and care by reason of disability on the ground that the shipowner's obligation for maintenance and care had been satisfied. The release given was shown to be based on a fair and complete understanding of the nature of libellant's illness and its effect on him and on his right of maintenance and care.

Moving Pictures as Evidence of Freedom from Disability

In a workman's compensation proceeding where compensation was awarded for disability arising from two accidents, the insurance company appealed. The appellate court found a sharp conflict disagreement among the physician witnesses as to whether plaintiff was totally and permanently disabled. The company asked for the remand of the case on account of newly discovered evidence. This evidence consisted of sixteen still photographs, enlargements of segments of moving picture films taken two and one half months after the award, showing insured painting his house while standing on a step ladder and a platform on the top of the ladder which were incompatible with the theory that he was totally and permanently disabled, giving the impression to the appellate court that, at that time, the plaintiff could be considered only as a robust man possessing absolutely no indication of total and permanent disability. The court found it difficult to believe that, after receiving the judgment in the lower court, the plaintiff could physically mend so rapidly as to permit the activities shown in the pictures, and the case was remanded to the lower court for consideration of all the evidence. W. Clury v. Delta Shipbuilding Co. (Ld.) 33 So. 2d 439.

Assessment of Damages

A verdict in a personal injury action for $35,000 was held not excessive for a fracture of the base of the skull, concussions, lacerations and swelling of the brain, five fractured ribs, lacerations over the eye necessitating four sutures, and also complete loss of hearing in the left ear. The injured person suffered and was likely to suffer permanently from headaches, dizziness, sleeplessness, depressions, and from irritability and rigidity and immobility of his head and neck and was obliged constantly to use drugs and sedatives. Weissman v. M. & M. Transp. Co., New York Trial Term, 79 N. Y. S. 2d 335.

The Appellate Division considered a verdict of $15,000 in a personal injury action resulting from an automobile collision to be grossly excessive and reduced the amount to $7,500. Johnston v. Metropolitan Distributors, Inc., 79 N. Y. S. 2d 651.

Method of Estimating Damages

In an action for damages for an unprovoked assault, a verdict of $6,500 was held not to be excessive where the plaintiff suffered serious injuries, including a fracture of the skull. Loss of earnings may be shown in such a case under the general allegation of damage and need not be specifically alleged because it is a necessary and direct result of an injury and constitutes a damage which the law implies. Groben v. Endel, New York Appellate Division, 79 N. Y. S. 2d 525.

Doctor's Records Not Privileged Communications

The records of patients who consulted a doctor professionally, showing only the name, address and telephone number of the patient, were not within a statute providing that the physician shall not, without the patient's consent, be examined as to any information acquired in attending the patient, or which was necessary to enable him to prescribe or act for the patient. "The statute is solely for the protection of the patient, not the physician." Wolf v. People, Colorado Supreme Court, 187 P. 2d 926.

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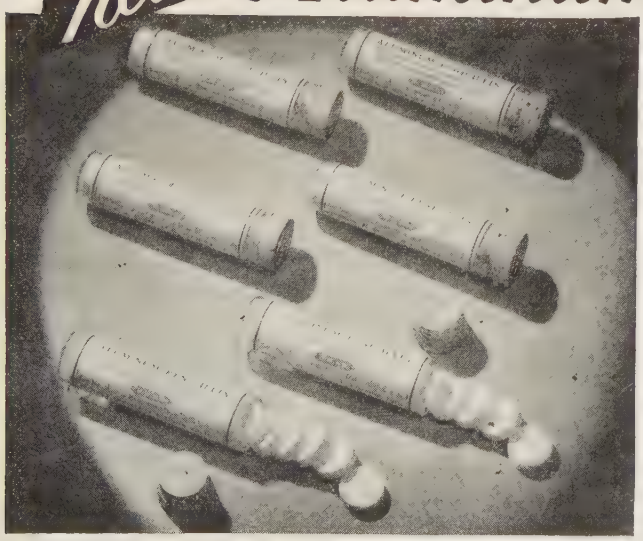

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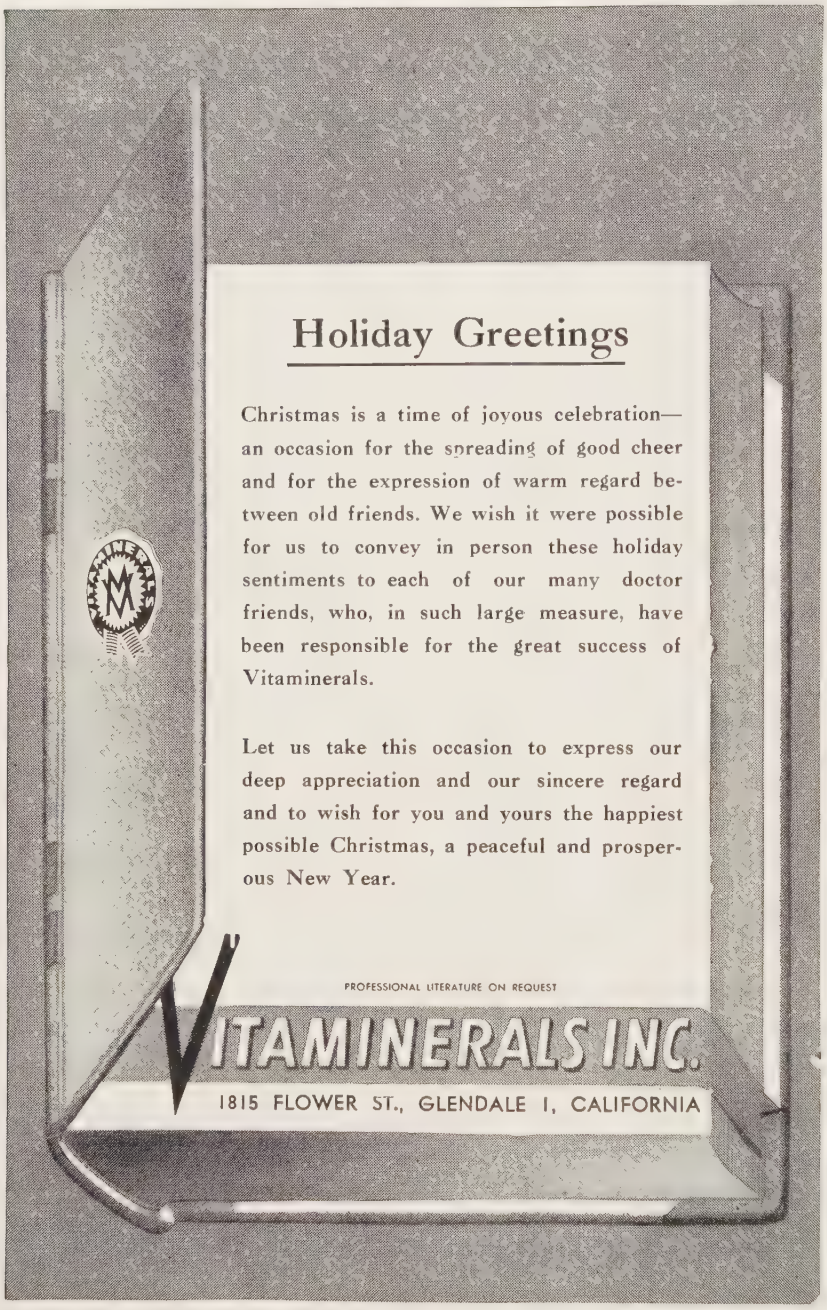
Holiday Greetings
Christmas is a time of joyous celebration—an occasion for the spreading of good cheer and for the expression of warm regard between old friends. We wish it were possible for us to convey in person these holiday sentiments to each of our many doctor friends, who, in such large measure, have been responsible for the great success of Vitaminerals.
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Physicians' Incomes Low In East, High In West, Survey Shows

Physicians' incomes are highest on the Pacific Coast, lowest in the Middle East and New England, according to a new analysis of the incomes of doctors in private practice, William Alan Richardson, editor of *Medical Economics,* has declared.

The magazine states that among physicians in seven of the country's largest cities, the highest average income is found in Los Angeles, the lowest in New York. On the average, doctors have hiked their office call fees 37 per cent during the last ten years. In that same period, the general cost of living has soared 67 per cent.

Symposium Held In December

A symposium on THE PATHOGENESIS AND PATHOLOGY OF VIRAL INFECTIONS will be held at the New York Academy of Medicine on Tuesday evening and Wednesday afternoon and evening, December 14th and 15th, under the auspices of the Academy's Section on Microbiology. The meeting will be open to all interested.

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MEDICAL RECORD

PUBLISHED MONTHLY BY
FOX—SHULMAN PUBLICATIONS

VOL. 161 DECEMBER, 1948 WHOLE NO. 2790

IS PAIN A PHYSIOLOGICAL OR A PATHOLOGICAL SENSATION?

A. L. SORESI, M. D.
New York, N. Y.

Neuro-histo-physiologists have firmly established certain facts and axiomatic data which have led them to consider pain a physiological sensation evoked by stimulation of specialized receptors analogous to other specialized receptors which confer upon the skin and the organs of special senses of intact humans' sensibility to touch-pressure, thermal changes, light and sound waves and molecular and ionic impacts in fluid and gases. The most fundamental data and facts essential to the discussion of the subject under consideration are the following which I quote from a textbook of an undisputed authority, i.e., Fulton's "Physiology of the Nervous System."

"Human beings experience different types of sensation and it has become abundantly clear that each modality of sensation is subserved by structurally different types of sensory nerve endings, e.g. the endings for pain, touch, cold and warmth are specific and distinguishable."

The receptor end organ is a specialized structure designed to set up nerve impulses in response to changes of environment. "These changes are referred as stimuli" and may be defined in Adrian's words (1928-p. 18) as *"any change in the environment of an excitable tissue,* which if sufficiently intense will excite the tissue, i.e., will cause it to display its *characteristic activity.* The stimulus is thus an external change and it may be ineffective—the stimulation may not have been intense enough to excite." In these circumstances no message of any sort is sent to the nervous system.

A re-examination of receptors' distribution and their correlation with sensory perception has recently been made by Woollard, Wedell and Harpman (1940), who emphasize anew that the reaction of these highly organized receptors is definitely specific, i.e., from Meissner's corpuscles it is impossible to evoke pain; indeed, *one can insert a needle into one of these corpuscles and so cause intense stimulation* without evoking conscious sensation, other than that of touch or pressure. This principle of specificity of sensory perception from individual end organs is generally known as the law of "specific energies"; it was first enunciated by Charles Bell (1811) and later and more completely by Johannes Müller (1826). Stimulation of a given sense organ, Müller said, gives rise to its own particular sensation and to no other. This concept lies at the basis of all modern interpretation of the nervous system (Walshe, 1942)."

"To summarize, since the nerve fiber connecting the end organ with the spinal cord fires maximally or not at all (all or nothing principle) the stimulus is merely a trigger which sets off the impulse, and it does not contribute the energy essential for its conduction. The character of the impulse is thus quite independent of the intensity or character of the stimulus which set it up. All end organs therefore share this second point in common, namely, that they convey their effects to the nervous system by the same kind of impulse."

"The principles involved in excitation of an end organ are *similar to those deduced from electrical stimulation of an isolated nerve trunk:* here the stimulus, be it electrical, chemical, or mechanical, produces a local alteration of sufficient intensity to develop a nerve impulse.

"The small myelinated fibers, on the other hand, often terminate as free nerve endings without elaborate receptors. Many lines of evidence to be mentioned later indicate *that the free nerve endings are associated with pain.* Their impulses are communicated more slowly to the nervous system. Hence a cut of the skin is *first felt as a touch sensation and only later is pain reaction evoked.* There are also *unmyelinated sensory fibers* with free nerve endings which likewise subserve pain sensibility."

Assuming as axiomatic that the free nerve endings of the small myelinated fibers and of unmyelinated sensory fibers subserve pain as stated by Fulton interpreting the general concurrent opinion of neuro-histo-physiologists, the following questions are pertinent when pain is considered in its most fundamental aspects in connection with the question of whether pain is a physiological or a pathological sensation.

1. Are these free endings truly specific receptors for the evocation of pain as e.g. the corpuscles of Meissner are truly specific receptors for the evoca-

tion of touch-pressure? The answer must be unequivocally *no,* because while the sensation of touch-pressure is evoked solely and exclusively by stimulation of the corpuscles of Meissner, pain sensation is evoked by stimulation of many other nerve structures.

2. All other physiological sensations, except pain, if the conception of pain as being a physiological sensation is accepted, are evoked solely by stimulation of the specialized receptors specific for each sensation.

3. Even assuming that the evocation of pain sensation by stimulating solely and exclusively some nerve endings is actually possible, there can't be any doubt that all the modalities of stimuli which have been used experimentally to evoke pain sensation and of those which evoke every one of the clinical modalities of pain from the least to the most severe in intensity and duration, never affect solely and exclusively the nerve endings allegedly credited as being specific pain receptors. The proof that this assertion is correct becomes self evident if we analyze the facts revealed in the following quotations and give proper consideration to the various modalities of clinical pain. "The pain endings are unique in exhibiting only to a limited degree the phenomenon of the adequate stimulus. Several kinds of stimulus energy are adequate to elicit pain, namely, electrical, mechanical, extremes of heat and cold, and chemical stimuli of a wide variety. The pain ending is therefore not specialized to react to a single form of energy, but reacts to extreme degrees of several kinds of stimulation." Sherrington pointed out that the property common to the various stimuli *adequate to excite pain endings is that such stimuli threaten damage to the tissues.* Thus, increasing degrees of heat first stimulate warmth endings and at 52° C. commence to stimulate pain endings. At about this temperature *histological damage to the skin* can be demonstrated. In Sherrington's classification of the senses, pain was termed *nociceptive* (author's italics) meaning sensitive to noxious agents. "The function of the pain *sense is protective,* whereas the other modalities of sensation are primarily informative or gnostic." Howell: Fulton's Textbook of Physiology. Chapter 18.

"The adequate stimulus for pain is any noxious agent which tends to cause tissue or cellular destruction. The end organs of pain are therefore designated "nociceptors" and the reflexes arising from such receptors are referred to as "nociceptive." (Fulton)

"Pain is that characteristic sensation which *arises* when the integrity of the tissues is disturbed." (Lugaro)

"Where there is pain, there is injury." (Lewis)

If we accept as true that "where there is pain, there is injury" pain being evoked only by "noxious agents" which disturb the integrity of the tissues "because pain is evoked only after histological damage to the skin can be demonstrated" is it logical to assume that only warmth and alleged pain endings have been stimulated, when the temperature has reached 52° C. and has caused actually "demonstrable histological damage to the skin?" Are the warmth and alleged pain endings the only nerve structures which can be stimulated when the heat has reached 52° C? Evidently not, because the progressively more marked redness of the skin is a glaring unimpeachable evidence that *at least* autonomic structures are stimulated simultaneously and concurrently with the warmth and alleged pain endings. Moreover is it conceivable that the complex cytoclastic factors which cause "histological damage to the skin, a rather tough structure, will not, of necessity, cause also damage to the delicate nerve structures found within the layers of the skin and immediately under it, to the vital humors and to every cell of the area directly and indirectly affected by the heat? Raising the temperature, beyond the physiological tolerance of normal tissues does not represent a normal physiological stimulus, it represents the beginning of a cytoclastic heat process leading to progressively deeper and more extensive actual cytoclastic with the increase of the temperature. Even before the actual beginning of the cytoclastic process, it becomes evident by the redness of the skin that, alterations of the media, indicating alterations deeper than the skin itself, occur when the temperature is raised above the normal tissues' temperature. The fact that the sensation of pain evoked only after the cytoclastic heat process has caused actual "histological damage to the skin," proves that:

1. The effects of the 52° C. heat are not limited to a normal physiological stimulation of alleged pain endings.

2. The heat which has damaged the skin must, of necessity, have damaged also the alleged pain endings and every other cerebro-spinal and autonomic afferent and efferent structures of the area.

3. Pain is neither a physiological sensation, nor is it evoked by stimulations limited to intact free alleged pain endings. The modality of pain evoked by heat, as pointed out by Sherrington, is neither a simple, specific or physiological sensation. It is a very complex, confused cacoesthesia evoked by mass stimulation, pathological irritation would be a more appropriate expression, of all afferent and efferent cerebro-spinal and autonomic structures of the area affected by the heat. All these structures instead of remaining and functioning as normal independent histo-physiological units have degenerated into an obviously pathological syncytium where all inner physiological boundaries having been abolished or greatly reduced, react in toto with consequent spreading of impulses in all parts without restraint or order. Actually the nerve structures become short-circuited, analogously to electric structures which become short-circuited when their insulation becomes inadequate.

Clinically, it can be stated that practically all modalities of pain observed in patients originate centrally beyond and independently of the alleged pain receptors: thalamic pain originates in the synapses; Herpes Zoster's pain originates in the spinal ganglia; tabetic pain originates in the spinal roots; neuralgic pain originates in nerve fibers; neuromas' pain originates in the regenerating buds. Even the modality of pain evoked, for instance, by pin point pressure on inflamed tissues is evoked by structures centrally beyond the receptors and independently of the al-

leged pain receptors. In fact let us consider an automatic electric apparatus, the function of which is based on a system of receptors-effectors analogous to those found in humans. The touch-pressure receptors are analogous in structure and functions to electric push buttons, the warmth receptors to thermostats, the light receptors to electronic eyes, and so on, each being activated only by a specific stimulus and each being connected to a fiber or a wire which conducts the current started in them to predetermined points. The reflexes or reactions to the various stimuli may take place by means of more or less complex mechanisms through effectors located at various internal and external points. The normal functional pattern of receptor-effector of the nervous system and of the electric apparatus depends not only on the integrity of the receptors and of the effectors, but also on the absolute integrity of all the pathways through which the current runs, which compels it to run without dispersion in the proper direction. Dispersion and misdirection of current will occur when the insulation of nerve and electric structures becomes inadequate. Given the fact that all receptors convey their specific effects to the nervous system and to the electric apparatus by the same kind of nerve or electrical impulse, through the same kind of fibers or wires respectively, we can logically deduce that in the nervous system and in electrical apparatus analogous effects will be produced by analogous alterations. In electrical apparatuses, when insulation becomes inadequate, dispersion of current occurs causing more or less complex shortcircuits with consequent misdirection of current resulting in more or less complex and serious dysfunctions. That adequate insulation is as essential to nerve structures, as it is to electrical structures and that nerve current is dispersed when their insulation becomes inadequate, with consequent cross-stimulation of neighboring fibers and misdirection of nerve impulses are data accepted as neurological and as electrical axioms. If we now imagine an electrical apparatus constructed as the skin and subcutaneous tissues of humans, with analogous well protected and free receptors and their myelinated and naked fibers, effectors and their fibers; in other words with all the complex cerebrospinal and autonomic afferent and efferent nerve structures located in the normal skin and subcutaneous tissues and we could subject such electrical apparatus to a process similar to the inflammatory process, the apparatus could not respond normally to stimulation because of the complex inextricable short-circuits which would perforce result from histological, medial and tensional alterations caused by the inflammatory process. In fact, assuming that each type of receptors would react to stimulation by very distinctively clear informative varieties of sounds; stimulation absolutely limited to push buttons would not be followed by the distinctive sound indicating touch pressure, because the current started by pressing the push buttons would not run orderly solely through their own conductors, but would be disorderly short-circuited to other conductors and thus produce a very confusing cacophony. If we should analogously be able to stimulate solely the corpuscles of Meissner located in a portion of inflamed skin analogous effects would perforce ensue and the sensation evoked would not be a clear, simple, distinct sensation of touch-pressure but a complex unpleasant sensation we call pain, *a true cacoesthesia,* evoked not by normal physiological stimulation of specific pain endings, but by the disorderly, abnormal stimulation of short-circuited nerve fibers. It seems therefore that in inflammatory conditions the pathological nature of pain cannot evidently be denied. If PAIN is considered as being of a physiological nature, the other three classical cardinal symptoms of inflammation, i.e., *swelling, heat* and *redness* having the same origin as PAIN should also be considered as being of physiological nature. The utter absurdity of conceiving the idea that inflammation could father one physiological and three pathological quids is too evident and leads to the only possible logical conclusion, i.e. that *PAIN is not a physiological sensation elicited* and mediated by specific nerve structures, but is a complex pathological sensation elicited by various nerve structures the bio-physical insulation of which has become inadequate to secure the proper direction of nerve impulses, which through short circuits become misdirected and run chaotically and antidromically, disrupting the whole sensorium and generating a complex, confused, unpleasant sensation which is called PAIN.

Let us repeat the experiment of Woollard, Weddell and Harpman and insert a needle in a spinal nerve where there are no receptors and contrast the results. Admitting as axiomatically true that "one can insert a needle into a corpuscle of Meissner and so cause intense stimulation without evoking conscious sensation other than that of touch or pressure," what happens when one inserts a needle into a nerve trunk? I borrow the sculptorial expression of Leriche who, after emphasizing the fact that in nerves there are no receptors and that mixed nerves are composed of all varieties of afferent sensory and efferent motor fibers, thus states his puzzlement, "and yet, if one pricks a nerve outside, inside or right in the middle, one never produces anything except a violent sensation of pain." Why is only pain sensation evoked? Let us use an ice pick and repeat the experiment on an electric cable and instructively take advantage of the accepted analogy between its structure and components and the structure and components of a nerve. Whether the ice pick pricks the cable outside, inside or in the middle, the result is identical, short circuits occur. Why? Because evidently the ice pick pricking the cable causes physical injury to the wires it meets by tearing them and/or damaging their means of insulation. The current will leak from the torn naked wires and from the wires the insulation of which has been seriously damaged and the current will, consequently, not reach the loci to which it was destined, but will become misdirected and run chaotically along the lines of least resistance. The shock that will follow pricking a charged cable with an all metal ice pick would convince any doubting Thomas, if he survives, of the actual effectiveness of *misdirected electric current* through shorts. The needle pricking a nerve trunk causes *physical injury* to the fibers it

meets by tearing them and/or damaging their means of insulation, exactly as the ice pick does to an electric cable and its component wires. The injury has the identical physical consequences in both the nerve trunk and the electric cable, i.e. *short circuits occur,* with consequent leakage and misdirection of current and analogous effects. Of course the one who pricks a nerve trunk does not run the risk of being electrocuted as the one who would prick a high voltage cable with an all metal ice pick, but otherwise the dysfunctional effects may be equally more or less spectacular, immediate or delayed in both nerve and electric structures. The sudden and most severe sensation of pain, the alterations of vital functions, the violent, uncontrolled muscular contractions and the heartrending vocalization that follow the occurrence of *shorts* caused by thrusting a needle into a large nerve trunk are actually no less spectacular than the very spectacular disasters which occasionally follow damage to and consequent shorts in electric structures. Analogously a minor, unnoticed injury may cause serious, permanent, almost irreparable late damages to electric devices as well as to the nervous system, because short circuits may have caused alterations of important essential central electric and nerve structures respectively. The most glaring example of the spectacular delayed disasters which may follow *shorts* caused by a minor injury are the severe cases of causalgia which may develop from a slight bruise or the mere pricking of one's finger. Obviously short circuits may be caused by any factor or combination of factors which render normal insulation inadequate and while a discussion on all the possible manners in which *nerve shorts* may occur would be too lengthy, can there be any doubt that pricking a nerve trunk with a needle will cause *short circuits* and that *short circuits* with consequent misdirected impulses are the sole, direct causa essendi of the violent pain resulting from pricking a nerve trunk?

THE PHYSICAL BASIS OF PAIN as one of the effects of *nerve shorts* analogous to the effects of *shorts* occurring in electric structures has been proven in the most important fundamental contribution on the nature of PAIN, i.e. the paper on "A pseudaffective reflex and its spinal path" published in 1904 by Woodworth and Sherrington. The authors observed that decerebrate and normal animals reacted alike to stimulation of the sciatic nerve with vocalization and violent disorderly contractions. They called the reaction "a pseudaffective reflex" because the sensation of violent pain produced in normal humans and normal animals is considered an *affective sensation* and they assumed that consequently it must be *pseudaffective* when produced in animals deprived of the brain. Actually the experiments of Woodworth and Sherrington prove that the pseudaffective reflex is not more affective than the muscular contraction which follows stimulation of isolated muscle fibers. The stimulation (irritation) of the sciatic nerves of decerebrate animals, evidently, causes *nerve shorts,* as has been demonstrated above. *Shorts* are purely physical phenomena and the *various* modalities of reaction of the decerebrate animals to *shorts* occurring in its sciatic nerve are physical reactions to the physical havoc and disorder caused by *shorts.* These modalities of reaction occur absolutely independently of the psyche, of the affective or any other brain center, as if the decerebrate animal were a mere complex electronic apparatus the functions of which are distorted, disordered and perverted by shorts. In fact, if we could build an electronic apparatus identical to a decerebrate animal and we should produce *shorts* in a large cable corresponding to the sciatic nerve, every part of the apparatus and the apparatus itself as a whole would cease to function normally, as does the decerebrate animal, in which occurs simultaneous disturbances and dysfunctions of the motor, sensory, circulatory and secretory structures and of the animal as a whole. It is essential to emphasize the fact that the stimulation of the sciatic nerve does not produce only that indefinable senseless, functionless cacoesthesia which negates all true normal sensations and is called PAIN. PAIN is indissolubly tied up with various modalities of reactions, i.e. violent, disorderly muscular contractions, secretory and circulatory alterations, abnormal vocalization. PAIN is merely the sensory pathological expression, as violent, disorderly, incoherent muscular contractions, secretory and circulatory alterations are respectively the motor, secretory and circulatory pathological expressions of the distortion and perversion of normal functions inherent to *nerve shorts. PAIN becomes affective* when to the electronic apparatus represented by the decerebrate animal a normal brain is added, but evidently its *physical basis,* i.e. *nerve shorts* and consequent dysfunctions, remains the same. All this is easily understood *if we consider the physical havoc and misdirection of impulses and chaotic disruption of normality caused by nerve shorts.* Stimulation of the highly irritable nerve fibers, which is absolutely unphysiological per se, whether done by pricking or any other means, has always one physical identical effect, i.e. it perverts, distorts and completely disrupts their normal function, which is limited to one way specifically predetermined conductively. Volleys of abnormal impulses started from the *shorted* fibers run centrally and peripherally and chaotically jump to and from motor and sensory, fast and slow cerebro-spinal and autonomic fibers and running antidromically disrupt synapses by butting against them and in inextricable turmoil chaotically, riotously bombard centers, effectors and receptors to which they were not destined. The volleys of abnormal impulses cause simultaneous disturbances and dysfunctions of motor, sensory, circulatory and secretory structures obviously absolutely independently of brain centers, which in the decerebrated animals have been eliminated, and while, also obviously, they affect the brain centers of normal humans and normal animals their fundamental physical nature remains unchanged. Considering the more evident manifestations which follow stimulation of the sciatic nerve one is logically forced to conclude that PAIN is no more a normal sensation than the heartrending vocalization is the normal sound emitted by the experimental animal or the normal speaking and singing voice of humans, nor are the disordinate, wild and violent muscular contractions, the normal

reflexes of walking, running, jumping, not to mention rhythmic dancing and the hundred other varieties of normally conditioned reflexes.

The facts and data presented and discussed above lead to the conclusion that actually there are no specific free ending, nor any other nerve structure for the sole purpose of evoking pain sensation. It is not difficult to understand how and why the credence that evolution had developed specific pain structures has been fostered when we give proper consideration to the facts stated by Fulton l. c.

"*Free nerve endings and plexuses (PAIN).* The most widely distributed receptors in the body are the free nerve endings and unmyelinated plexiform networks deep in the epidermal and dermal layers of human skin: these undifferentiated endings also occur in blood vessels and in many visceral organs."

The reason, evidently, is that the alleged pain structures are more readily shortcircuited than any other structure either in the course of experiments or by pathological processes, because of their extreme delicacy, their close proximity to other fibers and because the adequacy of their insulation depends solely on the normality of the media.

I would like to emphasize the following data and facts which confirm the assertion that evolution has not developed special pain structures, but that pain is an abnormal complex, confused cacoesthesia evoked only when nerve impulses become misdirected and disturb the brain centers more or less unpleasantly.

1. Notwithstanding the most thoroughly and expertly conducted investigations neuro-histo-physiologists have failed to locate any pain centers. The very fact that no pain centers have been discovered and the brain is not pain sensitive are the most convincing proof that misdirected impulses resulting from nerve shortcircuits *are the only causa essendi of pain.* In fact, pain originates only and equally from those cerebro-spinal and autonomic structures whence the impulses may be misdirected, whether the impulses are generated there or elsewhere. Obviously afferent impulses cannot become misdirected in the cortex because they end there, hence no pain originates from the cortex. But while no pain of cortical origin is known, efferent dysfunctions, such as spastic conditions, are known to originate in the cortex, because the efferent impulses which start from the centers and run to the periphery may start to become misdirected from the loci of their origin, i.e. from shortcircuited neurons of the cortex, as the afferent impulses which start from the periphery and run to the center may start to become misdirected from the loci of their origin, i.e. from shortcircuited ends of the peripheral afferent neurons.

A clinical proof of nerve shortcircuits being the causa essendi of pain is offered by the fact which I have observed in many patients during the last ten years, that the only successful method of controlling modalities of pain, such as observed in malignancies, is the devitalization of the spinal ganglia. The reason of the success of devitalization of spinal ganglia and the failure of alcohol or surgical destruction of sensory pathways, is that the former by devitalizing the spinal ganglia devitalizes the peripheral afferent neurons in their entirety and thus concurrently nullifies all the connections, pathological or otherwise, that any portion of the neuron may have with other nerve structures. On the other hand, alcohol or surgical destruction of sensory pathways destroy only the peripheral or the central processes of the sensory neurons leaving their cellbodies intact. Consequently the intact cellbodies maintain the life of the processes which are not destroyed and allow regeneration of the severed processes. Evidently the processes which are shortcircuited to other nerve structures can detour through these structures algogenic impulses to the cortex and thus evoke pain sensation.

Special consideration should be given to the following facts concerning the reversibility and complexity of PAIN and PLEASURE sensations:

1. PAIN is elicited when any and all *normal life sensations* are excessively prolonged.

2. PAIN and PLEASURE are antonyms expressing diametrically opposite sensations, yet the identical receptors in the same individual will generate PAIN or PLEASURE under the identical stimuli.

The smarting, painful sensation elicited in the mouth, not to mention the gastric reactions, when tobacco is first smoked or chewed, is completely reversed later becoming an irresistible pleasure to millions. The same can be said of spicy, hot condiments and of other numerous wellknown items. A cold shower elicits a pleasant sensation on a hot summer day in millions of humans who would consider it actually painful torture in winter time, but even on the hottest summer day the cold shower would become painful torture if excessively prolonged. Normal erection elicits pleasant sensations; chordee elicits most painful sensations.

Can these facts be explained by admitting the existence of nerve structures the specific and sole function of which is the mediation of PAIN, when they mediate also PLEASURE?

PAIN and PLEASURE are reversible sensations, mediated by the same structures. Are there yet undiscovered PLEASURE nerve structures which turn into pain structures?

Normal boys and girls run and jump wildly; the consequent marked acceleration of respiration and circulation gives them a healthy, happy, glorious glow indicative of the euphoria which pervades their soul and body; the same boys and girls, if years later suffer from angina pectoris, will assume a sickly look and experience the most agonizing pain on the slightest exertion. Have *nociceptors* grown into the heart tissues, or are there *nociceptors* which require years of development before their functions become unwelcomely manifest?

In viscera, which are not susceptible to ordinary stimulation, the only sensation evoked is pain sensation. Evidently only the existence of short-circuits between sympathetic and parasympathetic structures can explain the simultaneous sensory and functional disturbances observed in angina pectoris.

Fulton, l. c. thus reports the view held on referred pain:

"The phenomena of 'referred pain' and the tendency for the skin over an injured or inflamed viscus to become hypersensitive, is probably explained in terms of the extensive dichotomy of pain fibers, one branch passing to the skin, the other innervating a viscus in the corresponding dermatome (Weiss and Davis, 1928). Foerster (1927[a]) reports that on stimulating the peripheral cut end of a sensory nerve pain is felt in area supplied by adjacent cutaneous nerves. Weddel (1941[a]) confirming this observation finds that it is accounted for by the recurrent course taken by many of the smaller nerve fibers in mixed nerve trunks." (Fulton)

Isn't the phenomena of "referred pain" perfectly explained by the existence of short-circuits between the nerve structures from which pain is evoked?

The fact that a proper analysis proves that the alleged "protective function of pain" is an illusion, because, on the contrary, comparing pain with any other pathological condition, pain is not only the greatest life handicapper, but is also the greatest killer of them all.

The protective, defensive role of PAIN has been scientifically shot to smithereens by the fundamental work of Gasser when he determined with uncanny mathematical precision the speed at which the various fibers transmit impulses and proved that the alleged PAIN FIBERS are among the slowest, if not actually the slowest. The role of sensations being informative, is it not absurd to believe that evolution would have delegated the role of protection against impending or real danger to the slowest fibers? Isn't it a matter of fact that pain sensation is evoked only after actual noxious agents have caused actual injury, as Sherrington so clearly and scientifically explained when pain, for instance, is evoked by heat applied to the skin?

How can PAIN be called protective when it does not even protect against the bites of mosquitoes, for instance? Is not the pain felt only after the mosquito has sucked your blood, and perhaps infected you with malaria and 90 times out of 100 has flown away leaving you with an itching welt? Or, how can the PAIN which follows spraining of the ankle be called protective? This PAIN, *which can be completely controlled by a few cc. of novocaine solution*, may be the sole and direct cause of a most horrible death, if the injury occurs in a deserted locality and the injured person is prevented from reaching food, water and shelter because of the unbearable PAIN provoked by walking. Note that pain is truly the only handicapper and potential killer, because abolition of pain with a few cc. of novocaine will restore completely and immediately the full use of the injured leg. And is there a single mental or physical activity and normal physiological sensation which is not handicapped and/or completely negated by PAIN? And does not the compellent urge to minimize pain induce and often actually compel humans to resort to means of pain control which undermine their vitality, when life is not ended altogether by risky surgical procedure or suicide? And would not even the life of those condemned to certain early death by inoperable malignancies be prolonged if they were not cursed by pain?

Finally, if PAIN is considered from a philosophico-evolutionary point of view it is evident that it cannot be considered a physiological sensation because pain always handicaps all specific sensations and useful life functions, when it does not completely negate them; because pain has no useful function; because pain is the effect not of stimulation of regular receptors but of irritation or/and actual damage done to various nervous structures, other than receptors. Then, assuming, as a matter of fact, that the aim of evolution is the welfare, preservation and improvement of the individual and the species, is it not absurd to believe that evolution would have developed and perfected organs for the specific production of pain which acts always contrariwise to the specific aims of evolution? The absurdity will become more glaringly self-evident when and if we consider PAIN at the acme of its full development and "dysfunctional" activities, it has reached the doubtful dignity of a true disease; when PAIN seems to have permeated every cell of the body, as dyes permeate every fiber of dyed materials; when PAIN seems to have turned all nervous structures into slaves working incessantly for the sole evocation of PAIN SENSATION; when PAIN has completely subverted the specific senses, when sound and light waves evoke only PAIN sensation, when the gentlest touch only evokes PAIN sensation, *as if every corpuscle of Meissner had degenerated into a most effective nociceptor:* when PAIN seems to be a most vicious, merciless and persistent evil force determined to render the last days of humans doomed to certain death as unbearable as possible. PAIN, at the acme of its activities, serves no useful purpose perceivable by the human mind, not even as an invitation to suicide; many of its victims having been deprived of all will power, often praying and fearing at the same time even a merciful euthanasia. PAIN, at the acme of its activities, does not make any sense from any human point of view, and, from a scientific point of view, one feels induced to ask if it is not illogical to adhere to the prevailing conception of PAIN as originating from specific, specialized receptors created, developed and perfected for the sole purpose of evoking and mediating PAIN as a physiological, protective and consequently beneficial and useful sensation, when facts prove that PAIN sensation is actually evoked from most nerve structures when they are directly or indirectly injured.

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THE MALIGNANT UTERUS CAN AND MUST BE TAKEN FROM THE COLUMN OF MOST DESTRUCTIVE LESIONS

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When one takes into consideration the gross amount of literature both through professional and lay journals plus radio commentation concerning malignancy in general, we are aware we live in an age of cancer phobia.

Although intentions may be the best, this cancer phobia is keeping the patients from the profession on account of the terror which is being engendered in the expected victim and this illegitimate fobia today amounts often to vulgarity and ignorance.

Many of us who have had long experience in dispensary and hospital service know that many women with cancer will come to the dispensary and request a pelvic examination, and when they are told the pelvis is normal they return the next day to say to the physician they have told an untruth and inform the physician that it was the breast and not the pelvis that troubled her and that she had been afraid to tell the truth on account of the fear she would be told she had cancer. I have had this experience many times. If the public is to be taught the dangers of cancer, then let the medical profession do the teaching and not the laity.

There has been a reprehensible failure on the part of the profession to grasp our real privileges in the prevention and treatment of those organs which permit repair or complete removal such as the breast and uterus.

The earnestness and vigor which the profession has attacked the malignant growth has quite annulled our sense to preventive medicine which is supposed to be characteristic of the age in which we live.

Of course the most scientific treatment of any lesion is the prevention of the same. There is no lesion in male or female which can so often be prevented as that of cancer of the uterus. Experiences differ, however, in a lifelong experience with constant association with dispensary and hospital gynecological work; in ninety-five percent of the malignancies of the uterus, the cervix was the site of the primary growth.

In seventy years experience of Joseph Price and myself in constant hospital and dispensary work, there has not been a patient return to us with malignancy of the cervix following repair of that structure.

Even taking into consideration that a certain percent of patients may have gone elsewhere for treatment, it still remains a most forceful message to all of us. Add to this experience that of Doctor Cashman of Pittsburgh who reports ten thousand patients who had the cervical lesions treated by the cautery, but two patients had subsequent malignant growth. The cervix must be cleaned up and returned by repair or cautery to its normal outline and relations.

We cannot permit this challenge to go unheeded; there is no greater appeal for salvation of life in the broad field of preventive medicine. Especially is this so when it is a common experience of all of us when attending any gynecological meeting to hear a prominent gynecologist begin his discussion by saying 'of all the lesions in the gynecological field the one which stands out in bold relief and challenges us to better thinking and execution is malignancy of the uterus.'

If we can prevent over ninety percent of malignancies of the uterus, certainly such expressions as above would not be necessary.

I have said in literature that this failure to prevent malignancy of the uterus is the greatest example of therapeutic anachronism of which I have knowledge.

In order to save the uterus, sterile or not, how far can we go in the way of investigation or treatment of the pre-evasive lesions of the uterus, the organ remaining?

This brings us to a discussion as to the value of the uterus in the particular case. In our experience, over ninety-five percent of the patients in whom there were signs and symptoms of a malignant uterus, the organ was sterile.

In the suspicious uterus the relative value of the indwelling organ and the risk of unrecognized malignancy must be pitted against hysterectomy and its possible mortality and morbidity.

The mortality of hysterectomy can no longer be used as a deterrent when compared to other means of treatment such as radium and x-ray, as the legitimate death rate of complete hysterectomy is one or a fraction of one percent. Throughout the history of the Joseph Price Hospital there has not been a death following vaginal hysterectomy clamp method from infection, embolism or hemorrhage. Our deaths have come from shock or cardiorenal conditions as all the poor surgical risks such as aged, excessive weight and the feeble patients from any cause, are turned over to the clamp method of vaginal hysterectomy.

Just as the death rate of complete hysterectomy has been reduced to an almost vanishing point, in due proportion must all means of recognition of the type of growth demand greater accuracy, and especially so as we are dealing with a fruitless organ in over ninety-five percent of the cases.

The profession has almost totally ignored these points of relative values which are all of sterling worth. We cannot longer accept any means of diag-

nosis of the malignant uterus in the sterile organ that is not ninety-eight or ninety-nine percent accurate, as it costs but one or a fraction of one percent to remove the useless organ.

I take this to be the premise on which the future fight for the life of the patient with a suspicious or malignant uterus must be made.

In the great percent of patients who are investigated for a malignant uterus, the organ is sterile and so I repeat, the less the value of the organ and the more amenable it is to complete removal, the greater is the demand for accuracy in diagnosis, so that the discussion of relative values cannot be ignored.

It is on account of the clash between accuracy of diagnosis and the value of the functionless organ that we have opposed the accepted means of diagnosis of the malignant uterus such as removal of one-tenth of the cervical rim or the use of the diagnostic curet, both in complete examinations of structures examined. That the malignant endometrium can be scraped without danger of metastasis is a radical denial of all the principles incident to the treatment or management of malignant growth in general.

In these patients where the accepted means of diagnosis have been performed on account of some supposed pre-invasive condition, it will be found on further and more complete investigation by removal of all or a part of the organ, that malignancy existed but was not discovered by the biopsy. This has been seen often and is an appeal for removal of the organ. We practice and strongly endorse the teaching of the diagnostic information which may be obtained from examination of vaginal or cervical smears as endorsed by Doctor Meigs. We accept such as one of the greatest modern advances in gynecological work. It is safe, accurate and acceptable to competent pathologists.

I am not trying so much to detract from the value of accepted teaching as to the methods of diagnosis in the malignant uterus, as I am trying to pit against the possible errors of such investigation of a sterile organ which may be invaded by a fatal disease; as I am trying to teach that the functionless organ can be removed by almost a vanishing mortality and is the treatment indicated.

It is our opinion that between ninety-seven and ninety-eight percent of patients who die from uterine malignancy there can be errors shown professionally or otherwise. In other words, we are just that far from practicing our professional privileges.

Can we afford to treat conservatively conditions of the cervix which are so often referred to as precancerous, even though the term precancerous is often spoken of as lacking in pathological confirmation. However, it serves a warning!

Constantly relative values come up such as the value of the uterus and price (mortality and morbidity) of its removal. We have referred to the expression of the teacher that the one lesion in the entire field of gynecology which challenges us to better thinking and action is malignancy of the uterus. We take the position that there is no organic lesion in male or female which can so often be prevented, as malignancy of the uterus.

We can prevent over ninety percent of cervical malignancies.

From ninety to ninety-five percent of uterine malignancies the cervix is first involved. Such an expressive example of prophylaxis cannot be seen in any other lesion in male or female. We know of no other organ in either male or female where clinical history and physical signs of malignancy so often point to a correct diagnosis upon a date when extirpation of the organ will give such splendid results as that seen in uterine malignancy. We must stop treating the malignant uterus and advance as a solid phalanx for total removal of the organ at the earliest hour possible.

In all cases where we feel the malignancy is still confined to the uterus, that is, within the first and second stages of extension, we perform vaginal hysterectomy clamp method. The slough of the broad ligaments incident to the crush of the clamp and also the slough of the unsutured vaginal fornix incident to the operation add greatly to the amount of tissue removed and that which is most proximal to the growth. The severe slough which takes place from the broad ligament and the vaginal fornix is of course followed by very extensive round cell infiltration in the para-uterine location. What this has to do with the superior results in clamp method of removing the uterus over that of the ligature method we do not know.

Many of the advocates in the use of irradiation claim the round cell infiltration is an important element in cure as such infiltration imprisons malignant cells. The very low mortality and the splendid post-operative history strongly commends the operation as a prophylactic measure. The ease of accomplishment in a great percent of cases makes the operation accessible to a large percent of operators of reasonable ability.

The very low mortality invites the patients of excessive weight and age to its advantages over the abdominal route. These virtues raise the mortality of vaginal hysterectomy and protect the mortality of abdominal hysterectomy. Vaginal hysterectomy may be performed on many patients where one would not think of an abdominal operation.

In not discussing the use of radium and x-ray in the treatment of uterine malignancy, we do not mean to assume an ignoble stand toward these accepted therapeutic agents in the treatment of malignancy, but in this discussion we make the statement that we never treat uterine malignancy (confined to the uterus), but always remove the organ. If the malignancy is supposed to be invasive beyond uterine structures, we endorse the abdominal route which is advocated and carried out in such a masterly way by Doctor Meigs of Boston.

Operators who have had no experience in vaginal hysterectomy clamp method for uterine malignancy are in no position to criticize or discuss the subject. Their position is indefensible and untenable. All of our hysterectomies are preceded by extensive cauterization of the cervix and thus we avoid any malignant operative implantation to the surrounding structures.

We have gone into this subject extensively both by illustration and discussion in a monograph. Doctor Novak calls our attention to those conditions which present an extreme degree of atypical hyperplasia with decided glandular atypia, epithelial overactivity and stratification; and says the simulation to adenocarcinoma is so perfect that one cannot in present state of clinical knowledge afford to take the hazard of conservative treatment. No stronger argument can be offered for total removal of the uterus as opposed to any kind of conservative treatment.

Too often we dismiss the possibility of malignancy of the middle third of the uterus on account of the cervix showing no involvement or even any benign erosion. Malignancy in this location is the most vicious of all locations of uterine malignancy. It is recognized late, metastasis takes place early and tissue invasion is extensive. These cases are the least amenable to even the most radical surgery either from above or below.

It has been difficult for us to reconcile the excellent results we have had with vaginal hysterectomy clamp method with the first and second degrees of uterine malignancy on account of some reports of the early involvement of pelvic and abdominal glands. However, we do know there is a tendency toward disappearance of early glandular involvement and daughter cells complicating malignant tumors after the parent growth has been removed. However, I am not endorsing such as a teaching.

We are at present interested in an unfinished ten year follow-up of the cases where we have assumed that uterine malignancy was confined to the uterine structures and, therefore, performed vaginal hysterectomy clamp method. Our results are so good that we are enthusiastic about the message we have tried to give. We have always felt that malignancy remained confined to the uterus longer than is the popular teaching.

We have not had a return of fundal malignancy providing hysterectomy was performed before the peritoneal membrane was involved.

Let us take the malignant uterus from the column of most destructive diseases and place it among the more manageable lesions. We can do this if we first clean up the cervix by repair or cautery and thus prevent ninety odd percent of malignancies of the organ, and then advance as a solid phalanx for the earliest total extirpation of the uterus that is possible.

241 N. 18th Street

THE BLOOD PROTEIN TEST (B. P. T.) A NEW LIVER FUNCTION TEST

JOSEPH H. ISENSTEAD, M. D.
Canajoharie, N. Y.

I

A test of liver function is offered which undertakes to explain the function of this organ by means of a new concept of its action.

The tests used to-date are faulty from a clinical and pathological standpoint because even in extreme cases of liver pathology the results of the various tests are frequently found to give normal results. Secondly, those tests which are innumerable do not measure liver function.

To present this problem properly requires to point to the multiplicity of hepatic functions, to evaluate known liver function tests and eventually offer the liver function demanded by clinical medicine.

II

The liver, a combined tubular gland, has attracted deep interest of researchers since ancient times. Containing epithelial cells, the liver cells proper, and endothelial cells, interspersed with Kupffer's star cells, the liver, judged by its tissues, can be considered a double organ. It is called upon to perform multiple functions of greatest importance. Concerned with protein-fat-and carbohydrate metabolism it stores substances, e.g., glycogen, or releases them into the general blood stream as required. Forming a barrier for toxins and other poisons, its endothelial tissue is of great significance in the production of antibodies and is extremely phagocytic. The liver synthesizes the blood proteins and produces an antithrombin preventing clotting within the blood vessels. Being simultaneously an organ of secretion and excretion it plays an important role in the water balance of the human body.

Certainly, diagnosis of diseases of the liver is incomplete if the function of the liver cannot definitely be established by using one comprehensive and reliable test.

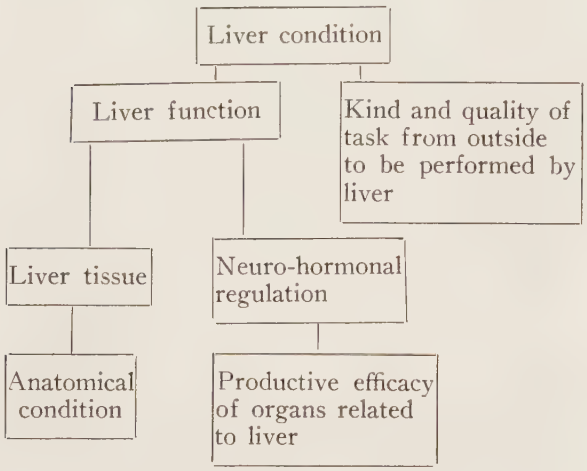
III

In order to evaluate liver function tests it is advisable to define the meaning of the word "function". Function is the performance of an action. Here is an example. When the heart function of a patient is tested by having him take some exercise and the pulse is counted before and after this performance, then during that exercise the heart goes into action enabling the examiner to test its function. Applied to liver function tests this would mean that the liver would have to perform a func-

tion too. There is so far no test available reporting the function of the liver before and after an action. All liver function tests at present used in laboratories confound liver function with liver condition. Pretending to determine the liver function they in fact only change one or more factors influencing the liver condition.

The liver condition depends on two main factors: 1) the liver function and 2) the kind and quality of the task the liver is asked to perform. As to the liver function, it relies on the anatomical condition of the liver tissue and the neuro-hormonal regulation based on the productive efficacy of the organs related to the liver.

The following scheme tries to explain the situation:


Liver condition
Liver function
Kind and quality of task from outside to be performed by liver
Liver tissue
Neuro-hormonal regulation
Anatomical condition
Productive efficacy of organs related to liver

According to this concept no method using a foreign substance offered the liver by intravenous injection or by mouth can directly test the liver function. If it gives results at all it is an indirect and partial one and therefore unreliable.

IV

Here is an objective evaluation of some liver function tests.

Icterus index and van den Bergh reaction are based on the accumulation of bilirubin in the blood, the principal pigment of the bile which is formed from the destruction of aged red blood cells.

The Bromsulphalein test uses a dye injected intravenously supposed to be eliminated from the blood to the amount of two or five mg. per kilogram of weight in thirty minutes.

The principle of the Prothrombin test is that in the presence of an adequate intake of vitamin K abnormal formation of prothrombin indicates hepatic damage.

Hanger's Cephalin-Cholesterol Flocculation test is based on the fact that the diseased liver produces serum globulin in excess that will bring about flocculation of a cephalin-cholesterol emulsion.

The Hippuric Acid test uses sodium benzoate which ingested causes the liver to produce hippuric acid to be measured in the urine.

There are more tests available: the Blood Phosphatase test, the Galactose Tolerance test, and the Takata Ara test. Still more could be named but none of them reports the performance of an action by the liver. They are not reliable liver function tests, they only state the condition of the liver at the time blood was withdrawn for the test.

V

In order to get a comprehensive result the liver function must be tested directly, i.e., it must be tried to bring an independent action of the liver about. There seems to be only one way of obtaining this result: artificial stimulation of its neuro-hormonal regulation presumably located in the hypophysis and hypothalamus region. Then, it could be assumed that this action of the liver would produce certain auto-substances; of these substances one was to be selected guide of the test.

VI

According to our own experiments and observations, the physiologic regulation of the liver function seems to depend on substances from organs closely related to the liver. These organs are supposed to be: spleen and pancreas. Their more or less specific substances are carried through the portal vein to the liver. In order to obtain an independent function of the liver it is deemed necessary to compound extracts of these two organs, to add liver extract and to inject them intramuscularly. This compound is believed to be transported to the liver where it undergoes further change. The new substance—X—is carried to the brain via circulation and there goes to work in the hypophysis and hypothalamus region. By acting on these centers, this substance "X" in turn stimulates the liver through its autonomic innervation. Thus, the physiologic action the human body is taking seems to be imitated; the liver cells should now respond to artificial stimulation. The production of auto-substances ought to start. But it is the anatomical condition of the liver tissue upon which this production lastly depends thus bringing different results about.

VII

The next problem was to select a guide-substance. This substance must be a true liver product; it must be easily accessible. Its level was to be determined before and after starting the independent liver action and it was to be tested twice within a relatively short time after the liver cells start to function on special order from the directing center. It should then be expected that there would be a result always, not a negative or positive but a normal or abnormal one. It is obtained by comparing the different values before and after the injection and by explaining the meaning of these facts.

VIII

It is the blood proteins which belong to the more stable substances of the human body. Especially

the albumin-globulin ratio must be considered the most stable value. Its daily shift is not greater than 5% and even if recorded for some days the shift does not exceed more than 10% of the proportion. Today, we know of globulin and fibrinogen being manufactured in the liver, probably in its endothelial part with its star cells. Furthermore, there is sufficient reason to assume that albumin is produced in the liver too, perhaps in its epithelial part. Here, it may be pointed to the fact that the albumin-globulin ratio is reversed in cases of severe liver cirrhosis. Other liver diseases, e.g., cases of icterus show the same close correlation between liver function and blood proteins.

Based on these facts, globulin was selected guide-substance, while the albumin-globulin ratio was chosen guide-value.

IX

The effect of the described compound if administered intramuscularly is that it is able to shift blood proteins very rapidly in cases of diseases of the liver. In this connection it must be emphasized that so far there was not known any substance whatever that could quickly shift blood proteins.

The liver function is to be judged by the shift of the globulin fraction and the albumin-globulin ratio. Generally commenting it must be pointed out that in cases of normal liver function there is no shift of the blood proteins. In cases of impaired liver function however, decreasing globulin is a favorable symptom while increasing globulin is an unfavorable one. As to the albumin-globulin ratio, globulin being its denominator the result is: the lower the ratio, the more affected the liver function.

X

According to these explanations the following results are possible:

1) The ratio only changes within its physiologic range, i.e., not at all or less than 0.1 of its value.
2) It increases after one and after two hours.
3) It increases after one hour and decreases after two hours.
4) It decreases after one hour and increases after two hours.
5) It decreases after one hour and after two hours.

Applied to the liver function these facts mean:

1) The liver function is *normal.*
2) The liver function is *slightly* affected.
3) The liver function is *moderately* affected.
4) The liver function is *markedly* affected.
5) The liver function is *seriously* affected.

The reports on the following two cases of the same diagnosis but different causes prove how exactly the shift of blood proteins reflects and corresponds with the liver function.

Female patient, 67 years old. Diagnosis: Icterus. Stone occlusion.

	Albumin	Globulin	A/G Ratio
Before injection	3.56g%	2.77g%	1.28
One hour later	3.66g%	3.22g%	1.13
Two hours later	3.66g%	1.81g%	2.00

Female patient, 67 years old. Diagnosis: Icterus. Acute cholangitis.

Before injection	3.40g%	3.23g%	1.05
One hour later	3.98g%	4.14g%	0.96
Two hours later	3.97g%	3.31g%	1.20

Comment: Both patients of the same age offer the same disease from different causes. The figures speak for themselves, no explanations seem to be necessary. But it must be mentioned that the clinical course of both cases proved the results of the Blood Protein Test to be true. The case with stone occlusion cleared up very quickly while the other one was in a serious condition for many weeks.

XI

The Blood Protein Test is to be applied in the following manner:

In the morning, in a fasting condition, the patient is to take the following tests:

1) Blood is withdrawn for determining blood proteins. All samples are marked "I".
2) One ccm of the compound is injected intramuscularly.
3) Exactly one hour later, the procedure to 1) is repeated. All samples are marked "II".
4) Exactly, another hour later, the procedure to 1) is repeated again. All samples are marked "III".

XII

The B. P. T. can be used to determine whether the liver function is normal, being the first and only test providing this eminently important information. The B. P. T. is able to detect slightest liver damage and to distinguish between an intrahepatic and extrahepatic obstruction. The test will discover residual damage to liver tissue, follow up results of therapeutic procedures and state prognosis. In brief, the Blood Protein Test puts diagnosis, therapy and prognosis of diseases of the liver on a reliable foundation.

33 Barclay Street

NOTES ON PRURITUS ANI

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Prutitus Ani, in many cases is ascribed to acid stools, intestinal disorders, stasis, and gastric acidity. It has been stated that a teaspoonful of sodium phosphate dissolved in hot water and diluted by 2 or 3 glasses of water taken an hour and a quarter before breakfast every morning for two or three weeks, with no meat diet has produced very gratifying relief. Meats of all sorts, especially lean meat, tend to acidify the tissue fluids to a marked degree. Eggs, meat extracts, broths, gravies, all belong to the acidifying foods, although to a less extent than meats. There are foods for want of bulk that produce the most pronounced derangements of the intestinal canal.

A few years ago, while attending the convention of The National Gastroenterological Association, at New York City, the manufacturers of "Cremalin" served ginger ale, crackers and Roquefort cheese at their exhibition booth. One of the physicians who enjoyed the repast developed a mild urticarial rash, and an intense anal pruritus. He stated that he was allergic to the cheese he ate. He took one of the bottles of Cremalin, went to the bath room and applied the solution to the anus with a piece of cotton, dabbing it on several times, which gave him much relief. Jokingly he stated that "the drug is beneficial from one aperture of the intestinal tract to the other." He left a piece of moistened cotton in the perianal space on arising.

Following the suggestion, the aluminum hydroxide preparation, amphojel, cremalin, trisogel, and geluslil were used. All yielded fair results, more pronounced by amphojel. These drugs were compounded in ointment, using bismuth subcarbonate as a base. In cases of dry pruritus, buzocain and chloretone were employed for analgesic effect. They were also compounded into rectal suppositories and produced successful results, relieving tenemus rectal irritation and proctalgia. The plain solution 1-4 oz. injected into the rectum slowly, with the hand syringe, and allowed to remain for several hours gave much relief. To prevent the ointment-like mixture from drying, a small amount of aquaphor was incorporated. The plain solution applied hot or cold, with moistened cotton, or gauze, to the perianal tissues, changing it frequently, while the patient is at rest decreases the irritation greatly.

It is stated that the beneficial results of the aluminum hydroxide gels in the treatment of anal pruritus, are due to their powers to inactivate the proteolytic enzymes, tryptic enzymes, in the fluids of distal colon. They also absorb the chemical irritants, and neutralize the acid qualities of the materials in the rectal canal.

Of course, the anal pruritus if moist, with some rectal discharge the mentioned preparations are of greater effective value in the form of local application. It has been definitely established that taking the aluminum hydroxide gels by mouth, a tablespoonful after, or between meals, especially where there is a high acid titre, has definite beneficial effect on the pruritus. It is of the utmost importance that treatment should be persistent and continued to a lesser degree even when the symptoms are gone. Tendencies for intermittent recurrence of itching, or relapses after an apparent cure are frequent.

Just a note, even though it may be out of place, is that recent trials with formaldehyde have been reported to be successful.

Very recently an apparatus called the "hypo spray," or "jet injection" has been introduced for the administration of various types of drugs, particularly penicillin, duracillin, and streptomycin. This particular apparatus lends itself in many fields of endeavors relative to the use of various agents for parenteral therapy, without a hypodermic needle. This instrument is utilizing jet force, by means of a mechanical spring, certain pressure can be built up within the chamber of the instrument and on release of this spring, will deliver a plunger and hit a metapule, driving a rubber stopper into metapule. And then with a small opening at the outside, which in contact with the skin, will deliver with this concentrated force medication through the unbroken skin.

Absorption of the agent whatever it may be, is definitely more rapid. The depth of penetration and dispersion of the material are very efficient. This instrument holds forth excellent prospects in the therapeusis of pruritis ani, by the effective injection of anesthetics, anosthetic oil, alcohol, pontocain, quinin urea hydrochloride, mercuric sulphide, and other medication.

These lines are written in recognition and confirmation of the excellent paper written by M. H. F. Friedman, B. R. Hastell, and W. J. Snaps in The American Journal of Digestive Diseases, February, 1948. "Treatment of Pruritis Ani by Local Application of Aluminum Hydroxide Gels." It is a very fine palliative remedy, practical and inexpensive.

Editorials

Pay The Doctor, But Pay Him First!

The delinquent patient, like the poor, shall be always with us. What can we do to make him appreciate the "services rendered" to the point where he will pay his medical mentor *first*, and all other bills later? The doctor is a preferred creditor at time of death of a patient but not so at any other time.

This is an old subject but will bear a re-study from time to time. In the *N. Y. Physician* for August 20th, 1948, there is an editorial concerning "The Delinquent Account" which it describes as "an economic inconvenience" and a "potential threat to the present free enterprise system of practice." This is euphemism to the nth degree! Especially so, if the sheaf of unpaid bills in a drawer far outweighs the total amount of "bills receivable". The Alameda County (California) Medical Society is credited with a "survey" of the situation, and the analysis is set down under 9 headings.

Poor business on the part of the doctor is factor number one. It makes up some 30.23 percent of the total causes, and is broken down into no billing, insufficient information in the record which would enable one to follow the dead beat to his lair, unitemized statements which irritate the patient who is methodical in his bookkeeping habits, and no follow-up at frequent intervals by letter, phone, or repeated billing.

Misunderstanding or no understanding at all may be at fault at the first or at later interviews as to how much a given or proposed service is going to cost. Such matters as x-ray, laboratory, metabolism tests, or special service rendered outside of regular hours or in an emergency or at night ought to be explained orally or by letter or notation on the "bill rendered."

Some attention must be paid to certain economic difficulties, such as unemployment and no income above abject needs for living, illness in other members of the family, emergency travel to far-off places which were unexpected outlays etc. In any or all of these conditions, patients are notoriously irresponsive and give no inkling of the stress under which they may be living. They often say "why you ought to have known that I was unable to pay at this time," or "anyone else would have given me a break." Absurd as it seems to us, they *do* expect us to be mind readers, and are sometimes miffed because we sent no word of sympathy! The more friendly, past relations have been, the worse the situation is looked upon, and patients sometimes act as if the bill should be cancelled entirely because of their "hard luck". It does not occur to them that a business house would never consider such abatement, which, we suppose, is a sort of left-handed compliment to a lenient and generous profession.

Dead beats who never pay anything to anybody if they can get out of doing so, are set down as 10.99 percent of the delinquent group. This certainly is a variable quantity, and might well be rationed according to the kind of medical practice and the location where it is carried on; e.g. in a town lived in by race track touts or gamblers. All credit is based on character, and we would not ordinarily assume that persons existing under such a precarious form of making a living would be exemplars of honor in human relationships. A sure sign of the D. B. is found in the blow-hard type who "always pays his bills" and "never owes nothing to nobody". The very fact that they stress these ordinary obligations shows that they have in mind to do the very thing which they decry.

Negligence is a common human trait of certain people who are always just on the point of doing this or that, but never quite equal to acting on whatever feeble impulse may be stirring in them at a given moment. These are the manana gentry who are not really dishonest at heart, but who cannot bring themselves to decide or act upon anything in life more serious than dining or retiring. They simply "put off" everything which can be avoided unless it can give them pleasure in the doing, and nobody likes to write checks for some long-forgotten service or thing which belongs in the "dead-horse" category. Much medical service may become that with the passing of time.

There are those who will always complain of the kind and extent of medical service rendered, or even threaten a suit for malpractice, if pushed too hard for payment. However, in all fairness, one must say that perfectly honest, upright and well-meaning persons may take issue with a bill where relief from pain was not obtained or an added expense of some kind was incurred. It is so very easy to blame the

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DECEMBER, 1948

doctor for sins of omission, and being human, he may be guilty of just that one in a given circumstance; for example, not making a diagnosis of pulmonary tuberculosis because one depended too much on the stethoscope and not enough on the value of an x-ray picture which ought to have been made. We cannot always throw all of the blame on the patient, but must allot some of it to ourselves in certain circumstances.

Decrying responsibility for services rendered to another is a favorite resort of some individuals, and certain of them may honestly believe that they are not indebted because some one else ordered the medical attention. This is often the case during the excitement of an emergency when the doctor is told to "spare no expense" in doing whatever is necessary for the well-being of a patient, or to save his life. Such statements are verbal and may not be at all remembered by the would-be philanthropist. It may be just a prod to force the physician to do his utmost, even beyond the usual limitations of everyday practice. Divorced persons find this "out" an excellent one, since, in the case of a minor, neither parent wishes to be responsible for an offspring. One should be careful in such an instance to hold in writing, permission to operate or to treat the legal "infant", for the doctor may find that in going ahead with what he considers necessary he may be committing a technical "assault" in the eyes of the law. Instead of being paid for his zeal, he may become a defendant in a court of law, which is a bad spot for any doctor.

The matter of "excessive fee" is always one for dispute if any patient wishes to press it. This is an unstandardized factor, and depends upon innumerable sub-factors such as time, place, degree of skill, financial status of the patient or his sponsor, the professorial rating or lack of it in the attending physician, his "standing" among his colleagues etc. *ad infinitum*. Unfortunately, if the case goes to court, there will be witnesses against the plaintiff who can be made to swear that the fee is unfair or beyond all sense and reason. They may be medical men who have a spot of jealousy or personal dislike for the complaining doctor, or a wish to curry favor with the defending patient. Human greed is a quality which is seldom missing in anyone and doctors are no exception. A heavy loss in his financial set-up, and the economic urge in office and home may unsettle one's judgment of the value of a service, and actually lead to a situation which may seem to border on extortion. Court action in any such case is undesirable. The publicity may be destructive of future connections in and out of hospital or clinic or medical society, and the outlook for new patients may wither even in the view of a "settlement". The analysis above referred to sets down merely a 2% loss from demanding of "Excessive fee." This speaks pretty well for the rank and file of practitioners from whom the figures were taken in making a compilation.

Smaller fees for cash, rather than large ones for the book is the best assurance of peace of mind in any case, and both doctor and patient may keep on excellent terms for life by adhering to the "cash and carry" principle. However, in cases of prolonged illness and many "visits" the difficulties are multiplied, but "something on account" makes an implied contract for service valid legally, and is a good staff to lean on at any time.

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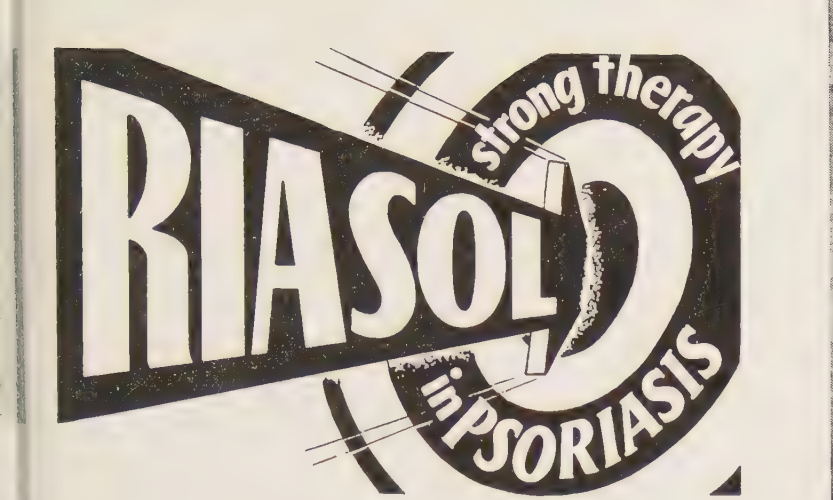

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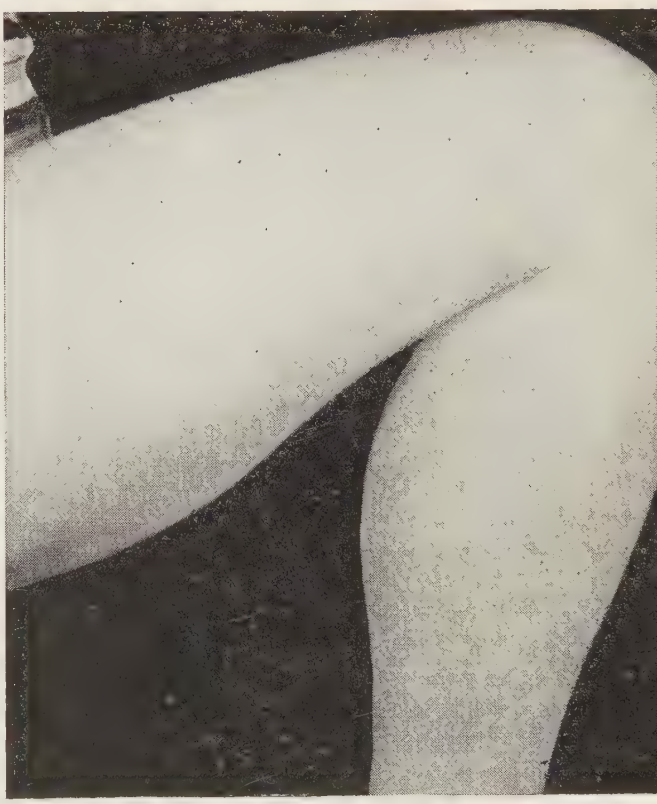

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RIASOL for PSORIASIS

Medical News

N. Y. U. Bellevue Medical Center To Expand

The New York University-Bellevue Medical Center is planning to expand to include ten hospitals, instead of the seven included during the past year. The Regional Plan, financially supported for a second year by a renewed grant from the W. K. Kellogg Foundation, makes possible a continuing process of medical education for resident and attending staffs of affiliated hospitals, and emphasizes that it is important for young doctors to keep abreast of research and new techniques. Requests for affiliation from more than 50 hospitals has been received. Doctors who participated from the affiliated hospitals praised the plan, stating that they derived considerable benefit from their training at the Medical Center.

Under the plan, resident physicians of affiliated hospitals have the privilege of spending an academic year at the Medical Center, participating in basic science studies and those subjects applicable to their particular residency. The affiliated hospitals are responsible for the maintenance of the student doctors but there are no tuition fees. Not only interns and residents, but also junior attending physicians and surgeons participate in this program.

Majority Of Doctors Would Refuse Service Under Wagner Program

About 61 per cent of physicians in private practice in the United States would refuse to provide service under the proposed Wagner-Murray-Dingell bill, it was announced by the editor of *Medical Economics*. At the same time, they would, of course, continue to serve patients on the usual fee for service basis.

Replies were received from a total of 4,864 doctors, of whom 61 per cent voted "no"; 15 per cent voted "yes"; and 24 per cent said they were "undecided."

Emotional Aspects Of Rehabilitation To Be Studied Under Dr. Grayson

A grant of $73,500 from the Commonwealth Fund for an immediate research project to study the emotional problems of the physically disabled while undergoing rehabilitation training was announced. Dr. Morris Grayson, a psychiatrist and member of the New York University College of Medicine faculty will direct the research. He will be assisted by a staff of three workers contributing psychologic and social service aid.

The college is undertaking this research in an effort to provide a comprehensive, far reaching program of medical rehabilitation, the already highly developed "third phase" of medical care that takes the disabled "from the bed to the job."

Initially Dr. Grayson's work will be to evaluate by psychiatric investigation the motivating factors in physical rehabilitation. This knowledge will be used to find out what emotional factors interfere with rehabilitation and what factors make some individuals more successful than others in their attempts to become rehabilitated. The project will also study the elements that psychiatry can contribute to preparation of individuals who appear to be emotionally unfit in addition to their physical disabilities. Psychiatric advice will be given to help individuals as the research progresses.

The New York Cardiological Society, Inc.

The New York Cardiological Society Inc., held its 68th regular meeting recently. The program consisted of a discussion opened by Dr. Bruno Kisch on "The Correct Measurement of Time Intervals in the Electrocardiogram," and another opened by Dr. Saul S. Samuels on "The Study of Drugs used in the Treatment of Intermittent Claudication." Members of the Medical Profession were invited.

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Book Reviews

Bacteriology, Hematology

Practical Bacteriology, Hematology and Parasitology. By E. R. STITT, M. D., Rear Admiral, Medical Corps; Surgeon general, U. S. Navy, Retd.; PAUL W. CLOUGH, M. D., physician-in-charge, Diagnostic Clinic, Johns Hopkins Hospital; assistant professor of Medicine, Johns Hopkins Hospital; and SARA E. BRANHAM, M. D., senior bacteriologist, National Institute of Health. Tenth edition. Philadelphia, Pa.: The Blakiston Co., 1948. Pp. xiv + 991. Price not specified.

Times marches on, and this is the tenth edition of Stitt's—all within one life time. Many physicians were brought up on Stitt's. Few physicians but would know the name. It is really wonderful to note how the passing of the years has left no imprint on this text. It has remained youthful, Stitt oozes with life and living of this moment. Take the notes on penicillin—the historical survey alone opens wide the vista of the abiotics. The discussion of the Rh factor in the section on Hematology is complete, yet short enough for review study. The routine examinations of pus, urine, blood and excreta are revealed in all detail.

A feature retained in Stitt's over the years has been the illustrations, and factual presentations of infection by vectors. The Publishers have been very liberal with illustrations in this edition. Each subject helped by a picture has a picture. Diagrams give visual aid . . . add to the text.

The reviewer found the short chapter headed Medical Mycology of great interest. The physician in practice is required to know more and more of this subject. The available specialist texts are too long, or too minute for reading when required. Dr. Goodlow has done a most commendable job.

In short then, this tenth edition of almost 1000 pages is useful to the medical student, to the laboratory technician, and to the physician whether he practice in the big cities or in the small communities—the rural areas—the sticks. Some time during the day, each day, a glance at Stitt's will elucidate some puzzle—will open new avenues of approach to the restoration of the patient to normal. And all in a rich language, beautiful to read aloud!

Psychiatry

Medicine. Psychiatry and Their Borderland. By ALEXANDER FRANK, M. D. Sydney, Australia: Shakespeare Head Press Pty. Ltd., 1947. Pp. 238.

Books on psychiatry, psychoneurosis and psychomatic medicine keep tumbling from the press in ever-increasing volume. The tendency now is to go back into general medicine as a whole and to find the "specialty" as an integral part of the whole man. Dr. Frank went back to the history of medicine not only, but to elementary subjects which are the province of the medical student. He remarks that "Psychology has been an unobserved and harmful force in (medical) practice." Now, however, *good psychology* is a potent force which crowns and completes the physicians work. In the face of present-day critical analysis, one must have all of the variable quantities at hand, and consider just what we are trying to do to make medical experience richer and more helpful to our patients. This is the gist of the little brochure which was written "on the eve of war and on the eve of revolutionary changes." It is sound and wholesome.

Physiology of Exercise

Physiology of Exercise. By LAURENCE E. MOOREHOUSE, Ph. D., associate professor of physical education, The University of Southern California; formerly research fellow, Harvard Fatigue Laboratory; and AUGUSTUS T. MILLER, Ph. D., associate professor of physiology, University of North Carolina Medical School. Illustrated. St. Louis, Mo.: The C. V. Mosby Co., 1948. Pp. 353. Price $4.75.

The physician with ten or more years of medical practice will find this book most stimulating and informative. Since each physician deals with man at work or play or in the armed forces, each chapter of this completely new book will give new facts or new slants on old ones. The body is more than a machine as outlined by the authors. It is more than levers and wedges. The chemistry and physics as well as the physiology of man at work is thoroughly explored under laboratory conditions! The facts are substantiated by numbers. The numbers were acquired by laborious and time taking experiments under control conditions. The work analyst will find much to help him in the chapter on The Mechanics of Movement. The coach for sport will determine the basis for his experience. The trainer for men for the army will find the pitfalls of all too easily accepted ancient notions. Well do the authors recognize the best man for the armed forces is the best physically equipped man—the fellow with muscles and the know how of utilizing them. No waste.

The biological information—the blood studies—the results of measurements of oxygen intake—these and more give the reader an inkling of the present mode of study of the physiology of exercise. This is not a light book—it is not an adjunct for muscle building gymnasia. It is a serious research and worth the full attention of each physician.

Heart and Circulation

A History of the Heart and the Circulation. By FREDERICK A. WILLIUS, M. D., M. S. in Med., senior consultant in cardiology, Mayo Clinic; professor of medicine, Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota; and THOMAS J. DRY, M. A., M. B., M. S. in Med., consultant in cardiology, Mayo Clinic; associate professor of medicine, Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota. Illustrated. Philadelphia and London: W. B. Saunders Co., 1948. Pp. 456. Price $8.00.

Would the life of a book reviewer were simple! Then all needed to be done for this work would be to give part of the preface—the page or so outlining the text—its sections beginning with antiquity and coming by stages to the 20th century; the biographic material in the general chronological discussion and the special brief biographies in the special section; and the third section of the book—that summarizing what has gone before.

But this glimpse is not sufficient. One would quote next the closing lines of the author of the short Foreword—this review of the history—aside from being delightful reading becomes a necessary part of any project that has to do with advancing knowledge of the field of cardiology.

Dr. Donald C. Balfour might have omitted the last three words—for Willius and Dry have assembled for the reader of English more than an outline of cardiology. The names sounded and the pictures reproduced reflect the advancing knowledge of all forms of physiology and pathology. The people contributing to the knowledge of cardiology also contributed to other vital forms of sectional medicine in health and disease.

The authors and the publishers have joined to make an honest book—one replete with references and acknowledgements of source material. The reader impelled to seek more details is directed to the books and the pages! The paper and printing are excellent; the reproductions of illustrations especially good.

Whatever your interest, as a person with knowledge of reading, this most unusual contribution to the art and science of Gutenberg (designated here only as the character responsible for books made from moveable type) offers unlimited hours of happiness.

Heart Disease

Coronary Heart Disease. By A. CARLTON ERNSTENE, M. D., chief of the section on cardiovascular disease, Cleveland Clinic, Cleveland, Ohio. Springfield, Ill.: Charles C. Thomas, 1948. Pp. v + 95. Price $2.50.

Each physician must keep abreast of the most recent findings and theories regarding heart disease. Although the author quotes authority in the lack of influence of occupation—doctors being no more subject to heart diseases than others—physicians regularly are reported as passing on because of heart trouble.

This monograph is exactly what it says—a writing—one writing—short and sweet. Packed not with rehash material but what the author and his friends think right now—1948. The volume is small enough to fit the pocket—most beautifully printed—easily read—worth rereading in sections. The chapter headings are: Angina Pectoris; Acute Myocardial Infarction; Acute Coronary Failure; Paroxysmal Cardiac Dyspnea (Cardiac Asthma); Heart Block and Disturbances of Cardiac Rhythm; Congestive Heart Failure; and The Risk of Anesthesia and Surgical Operation in Patients with Coronary Disease.

An index is given.

Abdominal Cancer

Radical Surgery in Advanced Abdominal Cancer. By ALEXANDER BRUNSCHWIG, M. D., professor of surgery, University of Chicago. Illustrated. Chicago, The University of Chicago Press, 1947. Pp. xii + 324. Price $7.50.

Dr. Brunschwig took run-of-the mill patients with abdominal cancer, many of them "inoperable"; therefore, not "selected," and in this book reports his results. He has no truck with those surgeons who fear criticism because of high mortality. If the patient is willing, he is ready to take the chance. He relies on prevention and treatment of shock, the use of continuous spinal anesthesia, a knowledge of fluid balance, supportive treatment through vitamin K and its like, and the use of chemotherapy. All of these things, he says, make for greater operability and better outcome.

The phrase "radical surgery" is no misnomer here. This surgeon removes as much as can be taken away consistent with enough function in the parts of organs still remaining to support life. He has removed the stomach, pancreas and spleen in toto, also a large part of the colon upon occasion. Even a considerable part of the liver may be excised, but, of course, not all. Here the surgeon meets a stone wall since metastasis may be so very extensive into the mesentery and peritoneal lymph organs.

A detailed account is given of 100 "inoperable" patients who accepted surgery with considerable success. Results are given in chapters XIX and XX at the end of the book and they are classified under four heads. I. Palliation with survival for one and one-half years or more. II. Appreciable palliative response for 1½ years which appears to "have justified operations." III. Survival for one month without much palliation or benefit. IV. Postoperative fatalities. Tables are furnished which give an over-all picture of the conditions met with and the progress made. The author states that "A defeatist attitude . . . that advanced cancer is invariably fatal . . . prolonging an existence which can only be unfortunate for the patient is no longer tenable . . . (there are) appreciable benefits from surgical therapy." The courage and determination of this surgeon are admirable,

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but he is likely to encounter much opposition.

Perhaps the idiocyncracies of the reviewer are responsible for the criticism now offered. The paragraphs on treatment within the chapters is not quite specific enough for the physician in practice. Also, the author does not or at least gives the impression of not 'laying down the law' to the patient with heart disease. Certainly, many factors are at play and are involved in ordering restriction of activity; avoidance of heavy lifting, straining, and excitement or other emotional stimulation (Page 18 on treatment of angina pectoris) BUT the sentence on page 19—An occasional individual finds the restrictions too trying for his temperament and prefers to limit his activities to a lesser degree and run the risk attendant upon a greater number of seizures . . . is followed by this one: Such a decision is the patient's privilege, and the physician will have fulfilled his duty of the nature of the condition has been adequately explained. This sentence is open to argument! To say the least, that is.

But the monograph is a good one—an honest reminder—an effort worth while.

Medical Economics Marks 25th Year

Medical Economics, national business monthly for physicians, recently observed its 25th anniversary.

Independently owned and published it was launched by H. Sheridan Baketel, M. D., now editor-in-chief, and Lansing Chapman, an advertising man.

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Personals

Drs. Carroll E. Palmer and Lydia B. Edwards, Senior Surgeons of the Tuberculosis Control Division, Public Health Service, Federal Security Agency, left for Paris, France on October 2 to confer with the international staff now engaged in the United Nations International Children's Emergency Fund anti-tuberculosis vaccination program. The program contemplates tuberculin-testing 40 to 50 million children in Europe and offering vaccination to all found to be uninfected by the tubercle bacillus.

Dr. H. Trendley Dean was appointed director of the National Institute of Dental Research by *Surgeon General Leonard A. Scheele* of the Public Health Service. Dr. Dean has been Director of the Dental Research Section of the National Institutes of Health, research branch of the Public Health Service.

David S. Grey, young Boston designer of lenses for television receiving sets and microscopes for medical research, has recently received the Adolph Lomb Medal for 1948.

The award is given every two years to a young scientist of outstanding promise who has made a noteworthy contribution to optics. Grey has been a member of the research staff of Polaroid Corporation, Cambridge, Mass., for six years.

Assistant Surgeon General R. E. Dyer will head the new National Institute of Dental Research in the National Institutes of Health at Bethesda, Md. The National Institute of Dental Research will conduct a broad attack on dental diseases, and related diseases of the mouth.

Dr. J. M. Gerschberg of 125 Riverside Drive, New York, president of the International Spanish Speaking Association of Physicians was the chief speaker at the banquet given in his honor by the El Paso Chapter on September 17 at the Hilton Hotel, to celebrate his completing 20 years as the president of the Chapter Magnus New York. Dr. Gerschberg said that during his trip he formed new chapters, bringing the number to 59 in all.

Dr. Homer W. Smith, chairman of the Department of Physiology of the New York University College of Medicine was presented recently with the Medal for Merit, the President's highest award to civilians. The medal was presented jointly by the Army and Navy at a ceremony in New York City for exceptional meritorious conduct in the performance of outstanding services to the United States as a member of Division Nine, National Defense Research Committee covering physiological and organic chemical problems. Dr. Smith was also the winner of a Lasker award in 1947 for outstanding work in public health.

New Products

Liquid Hematinic Marketed By Ulmer

A new liquid preparation of liver extract, iron and vitamin B-complex is being offered as Liquid Hematonic by Ulmer Pharmacal Company, Minneapolis.

Claimed to be of high potency, each fluid ounce contains not less than the following: Liver Concentrate (1:20) 30 gr., Ferrous Sulfate U. S. P. 16 gr., Thiamine HCl 8 mg., Riboflavin 8 mg., Niacinamide 32 mg., Yeast Concentrate 23 gr.

"Liquid Hematinic" is recommended for treatment of secondary and nutritional anemias. Because of its pleasant taste, it is especially suggested for children's use. It is obtainable in pint bottles, and gallon bottles.

White Petrolatum Now Available

White Petrolatum U.S.P.—Sterile, Baybank brand, which is dependably sterile and which still retains all the desirable properties of white petrolatum is now available. It still has unchanged color, freedom from odor, and the same consistency, viscosity, and melting point. White Petrolatum U.S.P.—Sterile is another in the series of distinctive new ethical medicaments which Baybank is bringing to the medical profession.

This new medicament is intended for topical application—direct from handy collapsible tubes—to burns and wounds, in packs, drains, protective coverings, or as a lubricant for gloves, catheters, and instruments in diagnostic and therapeutic procedures. Before operating room use—if desired—the unopened tube may be immersed in a suitable bactericidal solution (cold sterilization). Supplied in 1 oz. collapsible tubes, packed six to a carton, further details may be secured from Baybank Pharmaceuticals, Inc., Division of Chesebrough Manufacturing Co., Cons'd, 17 State St., New York 4, N. Y.

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Progress In The Fight Against The "White Plague"

The largest single health campaign ever undertaken is now in progress under the technical direction of the World Health Organization. For the first time in history, tuberculosis, the "white plague," is being combatted on an international scale by the coordinated efforts of doctors, nurses, and health workers.

The campaign is a preventive one. A principal aim is to make children safe from tuberculosis by vaccinating them with Bacillus Calmette Guerin, an anti-tuberculosis vaccine.

As the world-wide anti-tuberculosis campaign gains ground, the World Health Organization is at work developing further plans, not only for the prevention of this disease, but for its treatment and cure, to the end that tuberculosis, the "white plague" of history, may some day be vanquished as a menace to mankind.

Christmas Seal Sale Opens

The 1948 Christmas Seal Sale opens on November 22 and continues until December 25. The year-round tuberculosis control work of the 3,000 associations affiliated with the National Tuberculosis Association is supported by funds raised from the annual sale of Christmas seals. The greater the sale of seals, the greater will be the activities of the tuberculosis associations—and the nearer the complete eradication of tuberculosis.

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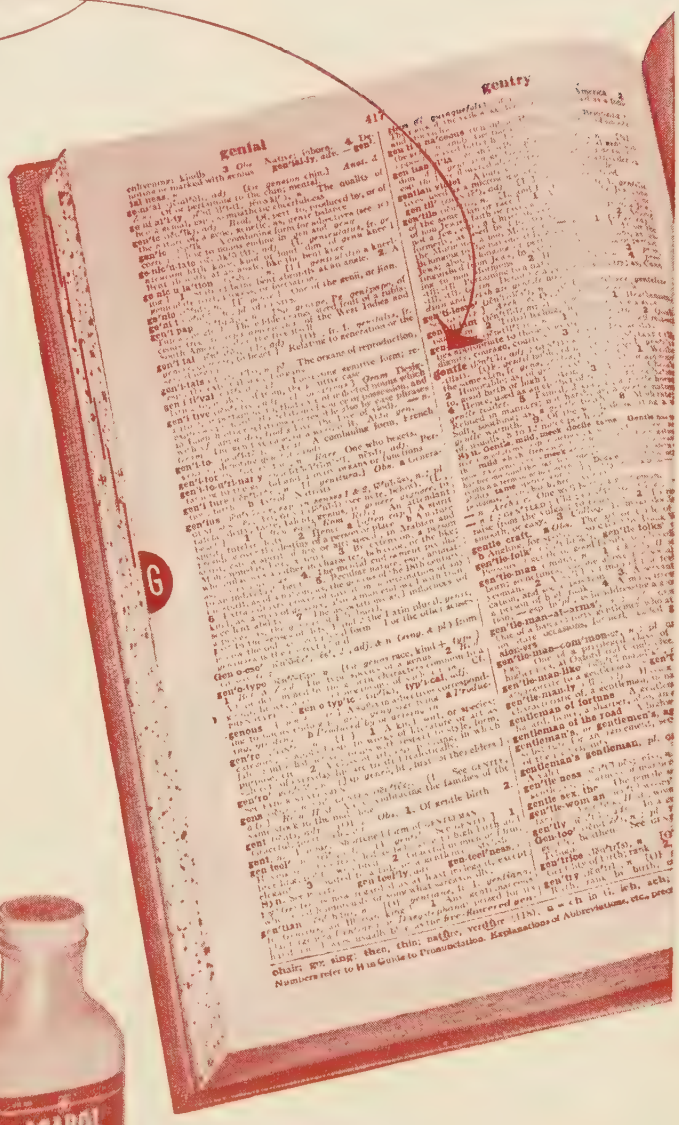

Gentle is the word for *'Agarol'**— a mild, well-tolerated laxative which provides *three* worthy essentials for easing the bowel movement of the weakened, constipated individual— moisture, lubrication and gentle stimulation. Moisture is retained in the stool by means of an aqueous hydrophilic agar-gel. Lubrication is supplied by highly emulsified mineral oil and indigestible colloid gums comparable to mucin. *Gentle peristaltic stimulation* is initiated by pure, white phenolphthalein, U.S.P.

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How Supplied: *'Agarol'** is supplied in bottles of 6, 10, and 16 fluid ounces.

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